

Serial No. 09/919,192
Amdt. Dated September 10, 2004
Reply to Office Action of June 28, 2004

REMARKS/ARGUMENTS

Prior to this Amendment, claims 1-16 were pending in this application. In response to a restriction requirement, claims 13-16 are canceled by this Amendment to expedite allowance of the case.

Claim 1 is amended to clarify that the reconfiguration center is remotely located relative to the storage management host and that reconfiguration center responds to the reconfiguration request by transferring a logical implementation of a second configuration to the client data storage system "via the storage management host." Further, the logical implementation is "selected or created based on the reconfiguration request and the first implementation."

New independent claim 17 is directed to a method of remotely reconfiguring a data storage system. The method of claim 17 is added to protect features of the invention not shown in the art of record. Specifically, the method of claim 17 calls for a reconfiguration system to receive a reconfiguration request, to determine a first configuration of a data storage system associated with the request, to identify a "level of configuration services" for the data storage system, and to define a logical implementation for the data storage system based on the identified level of service and based on the first configuration. The logical implementation is then transferred to the storage management host installed on the data storage system and executed to reconfigure master storage unit. The art of record fails to show defining a logical implementation based on an identified level of service and on a first configuration.

No new matter is added with support for the amendments found at least in the original claims and in Figure 2 and corresponding text.

Claims 1-12 and 17-20 remain in the application for consideration by the Examiner.

Serial No. 09/919,192
Amdt. Dated September 10, 2004
Reply to Office Action of June 28, 2004

Election/Restrictions

The Office Action imposed a restriction requirement on the originally filed claims under 35 U.S.C. §121. The claims were grouped into two groups. Group I included claims 1-12 while Group II included claims 13-16. By telephone, Applicants tentatively elected to prosecute the invention of Group I without traverse. With this Amendment, Applicants confirm the election of the claims of Group I (i.e., claims 1-12) without traverse, and to facilitate allowance of the case, the claims of Group II (i.e., claims 13-16) are canceled.

Rejections of Claims Under 35 U.S.C. §103

In the Office Action, claims 1, 4, 5, 7-10 and 12 were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Pat. No. 6,209,059 ("Ofer") in view of U.S. Pat. No. 6,009,466 ("Axberg"). This rejection is traversed based on the amendments to claim 1 and the following remarks.

Claim 1 is directed to a remote configuration computer system that includes a storage management host "installed in a client data storage system." The data storage system has "a first configuration" and the storage management host provides remote access and a communication link to the master storage unit and host of the data storage system. The system further comprises a reconfiguration center located remote to the storage management system. The reconfiguration center receives a reconfiguration request and in response transfers a logical implementation "selected or created based on the reconfiguration request and the first configuration" to the client data storage system "via the storage management host." The combination of Ofer and Axberg fails to teach or suggest a system for remotely reconfiguring a data storage system as called for in claim 1, and Applicants request that this rejection be withdrawn.

Specifically, the Office Action cites Ofer for teaching all of the features of the system of claim 1 except for the use of a data storage subsystem (for which Axberg is cited). Applicants disagree with this reading of Ofer. Ofer fails to teach a "storage management host" that is installed in a client data storage system that provides "remote access" and a communication link to a master

Serial No. 09/919,192
Amdt. Dated September 10, 2004
Reply to Office Action of June 28, 2004

storage unit and a host of a data storage system. The Office Action cites col. 3, lines 13-19 for teaching such a storage management host but at this citation and elsewhere, Ofer apparently is teaching a typical host controller (see Ofer at element 21). This element may teach the host of the data storage system of claim 1, which typically would include or be linked to a such a host controller, but fails to teach an storage management host that is installed in the data storage system in addition to the host controller. Further, the host controller is not taught to provide "remote access" to the host and a master storage unit, but instead, as shown in Figure 1, is shown between the local host (i.e., Host a, Host b, Host c, and Host n) and the local or system bus of the local storage units. There is no teaching of the hosts or host controllers being remotely accessed or communicatively linked with remote devices. Hence, for at least these reasons, Ofer fails to teach or suggest the system of claim 1.

Further, Ofer fails to teach a reconfiguration center that is located remote to the client data storage system. Ofer is cited at lines 4-6 of the Abstract, but at this citation the Ofer Abstract is discussing manipulating request queues associated with local host controllers. Ofer describes in its Summary and in its figures that a reconfiguration command is received at a data storage system and the system is reconfigured while remaining online. However, there is no discussion that such reconfiguration can be controlled or defined by a remote reconfiguration center as called for in claim 1.

Specifically, claim 1 calls for the remote reconfiguration center to receive a reconfiguration request. Ofer teaches that a reconfiguration command (see the Summary) is received at a data storage system, such as the one of Figure 2. There is no description that a request for reconfiguration is ever issued. Claim 1 further calls for the reconfiguration center to respond to the request by "transferring a logical implementation to the client data storage system via the storage management host." Ofer teaches receiving a reconfiguration command at the storage system but fails to teach receiving a "logical implementation" from a remote device and passing it to the storage system via a storage management host. For these additional reasons, Ofer does not teach or suggest the system of claim 1.

Serial No. 09/919,192
Amdt. Dated September 10, 2004
Reply to Office Action of June 28, 2004

Further, claim 1 requires that the logical implementation is "selected or created based on the reconfiguration request and the first configuration." As discussed above, Ofer fails to teach receiving a reconfiguration request so cannot teach selecting or creating a logical implementation based on such a request. The logical implementation also is based on the first configuration. Ofer provides no teaching that it is useful or desirable to select or create a logical implementation defining a second configuration based on the first or existing configuration. For these additional reasons, Ofer fails to teach or suggest all of the limitations of claim 1, and claim 1 is believed allowable over Ofer. Further, Axberg is cited only for teaching a data storage subsystem and not for overcoming these detailed deficiencies in Ofer. Hence, the combination of Ofer and Axberg does not support a rejection of claim 1, and Applicants request that the rejection be withdrawn.

Claims 4 and 5 depend from claim 1 and are believed allowable for at least the reasons for allowing claim 1.

Independent claim 7 is directed to a method for remotely reconfiguring a data storage system with limitations similar to claim 1 but in differing form. Hence, the arguments presented with reference to allowing claim 1 over Ofer and Axberg are believed to be applicable to claim 7.

Claims 8-10 and 12 depend from claim 7 and are believed allowable as depending from an allowable base claim. Additionally, claim 8 calls for receiving a reconfiguration request that, as discussed with reference to claim 1, is not shown by Ofer. Claim 8 also calls for determining a first configuration with the remote reconfiguration system prior to transferring the logical implementation from the remote reconfiguration system to the storage management host. Ofer is cited at col. 5, lines 28-40 but Ofer simply teaches saving "the current configuration of the host controller request queue" not determining the configuration of a master storage unit and certainly, not performing such determining with a device remote to the data storage system.

Claim 9 calls for determining a level of reconfiguration services and creating the logical implementation based on the identified level. The Office Action indicates that Ofer fails to provide this teaching but Axberg is cited at col.

Serial No. 09/919,192
Amdt. Dated September 10, 2004
Reply to Office Action of June 28, 2004

2, line 47 to col. 3, line 22 for overcoming this deficiency of Ofer. However, Axberg at this citation discusses how its interface and network configuration program can be used to plan configuration of a set of devices but fails to teach that it may be useful to simply determine a level of service and then, reconfigure a data storage system based on this service level, i.e., the logical implementation is created based on this determined level according to claim 9. Axberg fails to teach creating a logical implementation defining a reconfiguration that can be transferred from a remote device and further fails to teach performing such creation based on a level of service. Claim 10 provides a set of items that may be defined by such a level of service. Ofer and Axberg fail to teach the methods of claims 9 and 10.

Claim 12 calls for monitoring the data storage system and providing a recommended reconfiguration based on such monitoring prior to transferring the logical implementation for the second configuration. The Office Action cites Ofer at col. 2, line 47 to col. 3, line 22 and at col. 16, lines 30 to 34. Applicants could find no reference to monitoring a data storage system or providing a reconfiguration recommendation at these citations of Ofer (and Ofer has no col. 16). Axberg was also reviewed, but Axberg discusses that a network can be displayed on a screen for interactive configuration planning. However, Axberg does not teach monitoring its network and then, based on such monitoring, providing a recommended reconfiguration. For these additional reasons, claims 8-10 and 12 are believed allowable over Ofer and Axberg.

Additionally, the Office Action rejected claims 6 and 11 under 35 U.S.C. §103(a) based on Ofer in view of Axberg further in view of U.S. Pat. No. 6,085,244 ("Wookey"). Claims 6 and 11 depend from claims 1 and 7, respectively, and are believed allowable as depending from allowable base claims. Additionally, Wookey fails to overcome the deficiencies of Ofer and Axberg discussed with reference to claims 1 and 7.

The Office Action also rejected claims 2 and 3 under 35 U.S.C. §103(a) as being unpatentable over Ofer in view of Axberg further in view of U.S. Pat. No. 5,151,895 ("Vacon"). Claims 2 and 3 depend from claim 1 and are believed

Serial No. 09/919,192
Amdt. Dated September 10, 2004
Reply to Office Action of June 28, 2004

allowable as depending from an allowable base claim. Further, Vacon fails to overcome the deficiencies discussed above with reference to claim 1.

Conclusions

The additional references made of record in the Office Action but not relied upon have been considered. These references are believed no more relevant than those relied upon, and the pending claims are believed allowable over these additional references considered alone or in any combination.

No fee is believed due for this submittal. However, any fee deficiency associated with this submittal may be charged to Deposit Account No. 50-1123.

Applicants request that a timely Notice of Allowance be issued in this case.

Respectfully submitted,

September 10, 2004



Kent A. Lembke, No. 44,866
Hogan & Hartson LLP
One Tabor Center
1200 17th Street, Suite 1500
Denver, Colorado 80202
(720) 406-5378 Tel
(303) 899-7333 Fax